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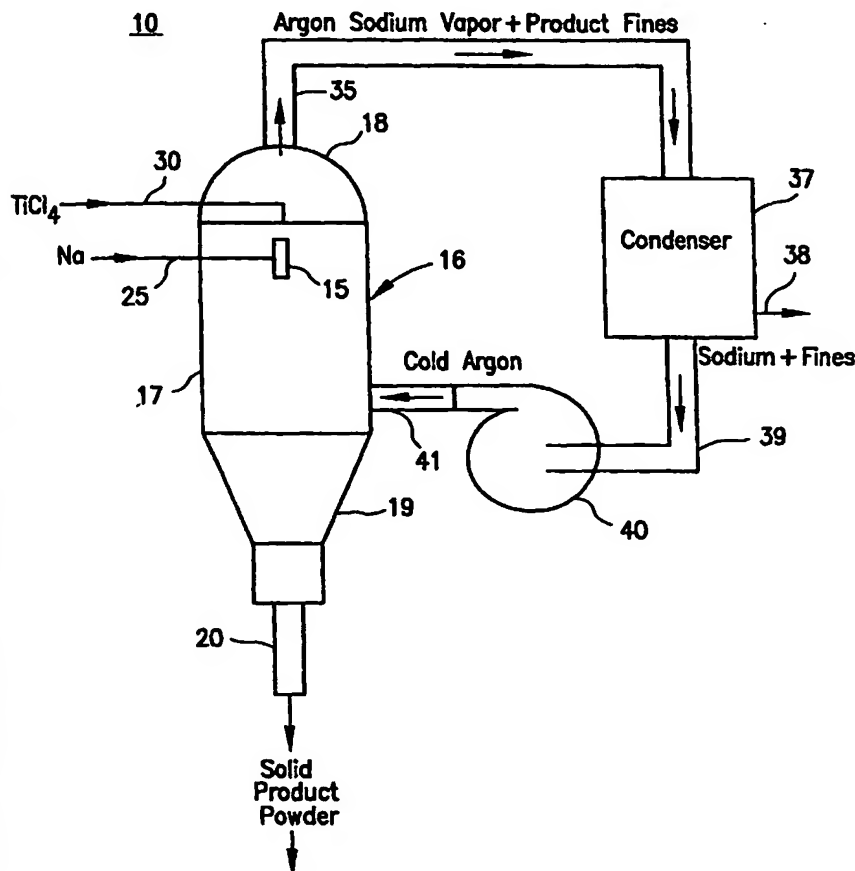
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(54) Title: SYSTEM AND METHOD OF PRODUCING METALS AND ALLOYS



(57) Abstract: A system and method of producing an elemental material or an alloy from a halide of the elemental material or halide mixtures. The vapor halide of an elemental material or halide mixtures are introduced into a liquid phase of a reducing metal of an alkali metal or alkaline earth metal or mixtures thereof present in excess of the amount needed to reduce the halide vapor to the elemental material or alloy resulting in an exothermic reaction between the vapor halide and the liquid reducing metal. Particulates of the elemental material or alloy and particulates of the halide salt of the reducing metal are produced along with sufficient heat to vaporize substantially all the excess reducing metal. Thereafter, the vapor of the reducing metal is separated from the particulates of the elemental material or alloy and the particulates of the halide salt of the reducing metal before the particulate reaction products are separated from each other.

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